



Microvascular decompression for hemifacial spasm : Surgical techniques and intraoperative monitoring

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Résumé en anglais	<p>Primary hemifacial spasm with few exceptions is due to the vascular compression of the facial nerve that can be evidenced with high resolution MRI. Microvascular decompression is the only curative treatment for this pathology. According to literature review detailed in chapter "conflicting vessels", the compression is located at the facial Root Exit Zone (REZ) in 95% of the cases, and in 5% distally at the cisternal or the intrameatal portion of the root as the sole conflict or in addition to one at brainstem/REZ. Therefore, exploration has to be performed on the entire root, from the ponto-medullary fissure to the internal auditory meatus. Because microvascular decompression is functional surgery, the procedure should be as harmless as possible and with a high probability of permanent efficacy. Besides facial palsy, main complications are hearing loss, tinnitus and gait disturbances. Causes are cochlea/labyrinth ischemia due to manipulations of their nutrient arteries and/or stretching of the eight nerve complex. To minimize the latter, the approach should not be with lateral-to-medial retraction of the cerebellar hemisphere, but along an infra-floccular trajectory, from below. In fact, most of the neurovascular conflicts are situated ventro-caudally to facial REZ at the brainstem, particularly those from a megadolicho-vertebrobasilar artery and its posterior inferior-cerebellar branch. Also, care should be taken not to cause any injury of the manipulated vessels or stretching of their perforators to brainstem. Heating from bipolar coagulation must be avoided. The inserted material used to maintain the offending vessel(s) away must not be neo-compressive. Intraoperative neuromonitoring is considered to be useful for achieving safe surgery at least until the learning curve has reached an optimal level, particularly BrainstemAuditory Evoked Potentials recordings. Increase in latency and/or decrease in amplitude of wave V warn excessive stretching or damage to the cochlear nerve, and decrease in amplitude of wave I signals possible ischemia of the cochlea. Free-running EMG of the facial muscles may warn against excessive manipulation of the facial nerve. Recording of the lateral spread responses - which are a sign of hyperexcitability of the facial motor system - may provide information on completeness of the decompression.</p>
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